

What is claimed is:

1. In a position information providing system comprising a portable communications device capable of transmitting by radio communication position information representing the position of the device, and a position information providing device capable of receiving the position information transmitted from the portable communications device and transmitting the position information to one or a plurality of terminal communications units, a position information providing method characterized in that the method comprises the steps of:
- preparing by the portable communications device a list required for checking whether it is approved to provide the position information for said one or plurality of terminal communications units in response to an information input manipulation by the user,
- causing the portable communications device to transmit data as to the prepared list as converted to a radio signal to the position information providing device and causing the position information providing device to receive the list data and register the list data, and
- causing the position information providing device to check

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whether provision of the position information for the terminal communications unit is approved based on the registered list data, in response to a position information request command from the terminal communications unit and to  
5 transmit the position information as to the portable communications device to the terminal communications unit only when provision of the position information is found approved.

2. In a position information providing system comprising  
10 a portable communications device capable of measuring position information representing the position of the device based on position data received from a plurality of position reference stations arranged on a satellite and/or the ground and transmitting the position information by radio  
15 communication, and a position information providing device capable of receiving and holding the position information transmitted from the portable communications device and transmitting the position information to one or a plurality of terminal communications units, a position information  
20 providing method characterized in that the method comprises the steps of:

causing the portable communications device to discontinue

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the position information measuring operation in response to a position measurement discontinuing manipulation by the user or upon arrival of a position measurement discontinuing time set by the user, and

- 5 causing the position information providing device to check, in response to a position information request command from the terminal communications unit, whether the position information as to the portable communications device is held by the position information providing device during a
- 10 specified period of time before the reception of the command until the reception and to transmit the position information to the terminal communications unit only when the position information is found to be held during the specified period.

3. A position information providing system comprising a

15 portable communications device capable of transmitting by radio communication position information representing the position of the device, and a position information providing device capable of receiving the position information transmitted from the portable communications device and

20 transmitting the position information to one or a plurality of terminal communications units, the portable communications device comprising:

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means for preparing a list required for checking whether it is approved to provide the position information for said one or plurality of terminal communications units in response to an information input manipulation by the user, and

5 transmitting means for converting data as to the prepared list to a radio signal and transmitting the radio signal to the position information providing device,  
the position information providing device comprising:

means for receiving the list data from the portable  
10 communications device,  
list register means for registering the list data,  
information processing means for registering the received list data in the list register means,  
means for checking whether provision of the position  
15 information for the terminal communications unit is approved based on the list data registered in the list register means, in response to a position information request command from the terminal communications unit, and

means for transmitting the position information as to the  
20 portable communications device to the terminal communications unit only when provision of the position information is found approved.

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4. A position information providing system according to claim 3 wherein the list comprises information for identifying only one or a plurality of terminal communications units of which provision of position

5 information is not approved, and the checking means of the position informaion providing device checks whether provision of the position information for the terminal unit is approved based on whether the terminal unit identifying information is included in the list data.

10 5. A position information providing system according to claim 3 wherein when provision of the position information is not found approved, the transmitting means of the position information providing device transmits notification information to this effect to the terminal unit.

15 6. A position information providing system according to claim 3 wherein the transmitting means of the portable communications device transmits the data as to the prepared list to the position information providing device in response to a list transmitting manipulation by the user.

20 7. A position information providing system according to claim 3 wherein the portable communications device comprises time setting means for setting a list transmitting time input

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by the user, and time detecting means for detecting arrival of the list transmitting time set by the time setting means, and the transmitting means of the portable communication device transmits the data as to the prepared list to the  
5 position information providing device upon the time detecting means detecting the arrival of the list transmitting time.

8. A position information providing system according to claim 3 wherein the transmitting means of the portable communications device transmits a list invalidation command  
10 signal as converted to a radio signal to the position information providing device in response to a list invalidating manipulation by the user, and the position information providing means comprises invalidation processing means for invalidating registration of the list data in the  
15 list register means upon the receiving means thereof receiving the list invalidation command signal.

9. A position information providing system according to claim 7 wherein the time setting means of the portable communications device sets a list invalidating time input by  
20 the user, the time detecting means being operable to detect arrival of the list invalidating time set by the time setting means, and the transmitting means of the portable

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communications device transmits a list invalidation command  
signal as converted to a radio signal to the position  
information providing device upon the time detecting means  
detecting arrival of the list invalidating time, the position  
5 information providing means comprising invalidation  
processing means for invalidating registration of the list  
data in the list register means upon the receiving means  
thereof receiving the list invalidation command signal.

10. A position information providing system comprising a  
10 portable communications device capable of transmitting by  
radio communication position information representing the  
position of the device, and a position information providing  
device capable of receiving the position information  
transmitted from the portable communications device and  
15 transmitting the position information to one or a plurality  
of terminal communications units, the portable communications  
device comprising:

means for receiving position data from a plurality of  
position reference stations arranged on a satellite and/or  
20 the ground,

position measuring means for measuring the position  
information based on the position data received,

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transmitting means for converting the measured position information to a radio signal and transmitting the radio signal to the position information providing device, and

control means for discontinuing the information measuring  
5 operation of the position measuring means in response to a position measurement discontinuing manipulation by the user, the position information providing device comprising:

means for receiving a position signal from the portable communications device,

10 means for storing the position information as to the portable communications device,

information processing means for performing the operation of storing the received position information in the storing means,

15 checking means operable in response to a position information request command from the terminal communications unit to check whether the position information as to the portable communications device is stored in the storing means during a specified period of time before the reception of the  
20 command until the reception, and

means for transmitting the position information to the terminal unit only when the position information as to the

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portable communications device is stored during the specified period of time.

11. A position information providing system comprising a portable communications device capable of transmitting by  
5 radio communication position information representing the position of the device, and a position information providing device capable of receiving the position information transmitted from the portable communications device and transmitting the position information to one or a plurality  
10 of terminal communications units, the portable communications device comprising:

means for receiving position data from a plurality of position reference stations arranged on a satellite and/or the ground,

15 position measuring means for measuring the position information based on the position data received,

time setting means for setting a position measurement discontinuing time input by the user,

time detecting means for detecting arrival of the position  
20 measurement discontinuing time set by the time setting means,

transmitting means for converting the measured position information to a radio signal and transmitting the radio

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signal to the position information providing device, and  
control means for discontinuing the information measuring  
operation of the position measuring means upon the time  
detecting means detecting arrival of the position measurement  
5 discontinuing time,

the position information providing device comprising:

means for receiving the position information from the  
portable communications device,

means for storing the position information as to the  
10 portable communications device,  
information processing means for performing the operation  
of storing the received position information in the storing  
means,

checking means operable in response to a position  
15 information request command from the terminal communications  
unit to check whether the position information as to the  
portable communications device is stored in the storing means  
during a specified period of time before the reception of the  
command until the reception, and

20 means for transmitting the position information to the  
terminal unit only when the position information as to the  
portable communications device is stored during the specified

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period of time.

12. A position information providing system according to claim 10 or 11 wherein when the position information as to the portable communications device is not found stored during  
5 the specified period of time, the transmitting means of the providing device transmits to the terminal unit notification information to the effect that provision of the position information is not approved.

13. A position information providing system according to  
10 claim 10 or 11 wherein the control means of the portable communications device causes the position measuring means to start the operation of measuring the information in response to a position measurement resuming manipulation by the user.

14. A position information providing system according to  
15 claim 11 wherein the time setting means of the portable communications device sets a position measurement resuming time input by the user, the time detecting means detects arrival of the position measurement resuming time set by the time setting means, and the control means causes the position  
20 measuring means to start the information measuring operation upon the time detecting means detecting arrival of the position measurement resuming time.

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15. A portable communications device capable of transmitting by radio communication position information representing the position of the device to one or a plurality of terminal communications units via a position information providing device, the portable communications device comprising:

means for preparing a list required for checking whether it is approved to provide the position information for said one or plurality of terminal communications units in response to an information input manipulation by the user, and transmitting means for converting data as to the prepared list to a radio signal and transmitting the radio signal to the position information providing device.

16. A portable communications device capable of transmitting by radio communication position information representing the position of the device to one or a plurality of terminal communications units via a position information providing device, the portable communications device comprising:

means for receiving position data from a plurality of position reference stations arranged on a satellite and/or the ground,

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position measuring means for measuring the position information based on the position data received,

transmitting means for converting the measured position information to a radio signal and transmitting the radio  
5 signal to the position information providing device, and

control means for discontinuing the information measuring operation of the position measuring means in response to a position measurement discontinuing manipulation by the user.

17. A portable communications device capable of  
10 transmitting by radio communication position information representing the position of the device to one or a plurality of terminal communications units via a position information providing device, the portable communications device comprising:

15 means for receiving position data from a plurality of position reference stations arranged on a satellite and/or the ground,

position measuring means for measuring the position information based on the position data received,

20 time setting means for setting a position measurement discontinuing time input by the user,

time detecting means for detecting arrival of the position

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measurement discontinuing time set by the time setting means,  
transmitting means for converting the measured position  
information to a radio signal and transmitting the radio  
signal to the position information providing device, and

5 control means for discontinuing the information measuring  
operation of the position measuring means upon the time  
detecting means detecting arrival of the position measurement  
discontinuing time.

18. A position information providing device capable of  
10 receiving from a portable communications device position  
information representing the position of the portable device  
and transmitting the position information to one or a  
plurality of terminal communications units, the position  
information providing device comprising:

15 means for receiving list data transmitted from the portable  
communications device,

list register means for registering the list data,  
information processing means for registering the received  
list data in the list register means,

20 means for checking whether provision of the position  
information for the terminal communications unit is approved  
based on the list data registered in the list register means,

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in response to a position information request command from the terminal communications unit, and

means for transmitting the position information as to the portable communications device to the terminal communications unit only when provision of the position information is found approved.

19. A position information providing device capable of receiving from a portable communications device position information representing the position of the portable device and transmitting the position information to one or a plurality of terminal communications units, the position information providing device being characterized in that the providing device comprises:

means for receiving the position information from the portable communications device,

means for storing the position information as to the portable communications device,

information processing means for performing the operation of storing the received position information in the storing

means,

checking means operable in response to a position information request command from the terminal communications

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unit to check whether the position information as to the portable communications device is stored in the storing means during a specified period of time before the reception of the command until the reception, and

- 5 means for transmitting the position information to the terminal unit only when the position information as to the portable communications device is stored during the specified period of time.

20. In a portable communications device capable of  
10 transmitting position information representing the position of the device to one or a plurality of terminal communications units by radio communication, a position information providing method characterized in that the method comprises the steps of:

- 15 preparing a list required for checking whether it is approved to provide the position information for said one or plurality of terminal communications units in response to an information input manipulation by the user and registering the data on the list, and

20 checking whether provision of the position information for the terminal communications unit is approved based on the registered list data, in response to a position information

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request command from the terminal communications unit and transmitting the position information as converted to a radio signal to the terminal communications unit only when provision of the position information is found approved.

- 5           21. In a portable communications device capable of measuring and holding position information representing the position of the device based on position data received from a plurality of position reference stations on a satellite and/or the ground and transmitting the position information
- 10 to one or a plurality of terminal communications units by radio communication, a position information providing method characterized in that the method comprises the steps of:

- discontinuing the position information measuring operation in response to a position measurement discontinuing
- 15 manipulation by the user or upon arrival of a position measurement discontinuing time set by the user, and

- checking, in response to a position information request command from the terminal communications unit, whether the position information as to the portable communications device
- 20 is held during a specified period of time before the reception of the command until the reception and transmitting the position information as converted to a radio signal to

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the terminal communications unit only when the position information is found to be stored during the specified period.

22. A portable communications device capable of transmitting position information representing the position of the device to one or a plurality of terminal communications units by radio communication, the portable communications device comprising:

means for preparing a list required for checking whether it is approved to provide the position information for said one or plurality of terminal communications units in response to an information input manipulation by the user,

list register means for registering the data on the list, information processing means for registering the prepared list data in the list register means,

means for checking whether provision of the position information for the terminal communications unit is approved based on the list data registered in the list register means, in response to a position information request command from the terminal communications unit, and

means for transmitting the position information as converted to a radio signal to the terminal communications unit only when provision of the position information is found

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approved.

23. A portable communications device according to claim  
22 wherein the list comprises information for identifying  
only one or a plurality of terminal communications units of  
5 which provision of position information is not approved, and  
the checking means checks whether provision of the position  
information for the terminal unit is approved based on  
whether the terminal communications unit identifying  
information is included in the list data.

10 24. A portable communications device according to claim  
22 wherein when provision of the position information is not  
found approved, the transmitting means transmits notification  
information to this effect and as converted to a radio signal  
to the terminal communications unit.

15 25. A portable communications device according to claim  
22 wherein the information processing means validates the  
list data registered in the list register means in response  
to a list validating manipulation by the user, and the  
checking means does the checking based on the list data when  
20 the list data is valid.

26. A portable communications device according to claim  
22 which further comprises time setting means for setting a

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list validating time input by the user, and time detecting means for detecting arrival of the list validating time set by the time setting means, and wherein the information processing means validates the list data registered in the list register means upon the time detecting means detecting arrival of the list validating time, and the checking means does the checking based on the list data when the list data is valid.

27. A portable communications device according to claim 25 or 26 wherein the information processing means invalidates the list data registered in the list register means in response to a list invalidating manipulation by the user.

28. A portable communications device according to claim 26 wherein the time setting means sets a list invalidating time input by the user, the time detecting means detects arrival of the list invalidating time set by the time setting means, and the information processing means invalidates the list data registered in the list register means upon the time detecting means detecting arrival of the list invalidating time.

29. A portable communications device capable of transmitting position information representing the position

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of the device to one or a plurality of terminal communications units by radio communication, the portable communications device comprising:

means for receiving position data from a plurality of  
5 position reference stations arranged on a satellite and/or the ground,

position measuring means for measuring the position information based on the position data received,

means for storing the position information,  
10 information processing means for performing the operation of storing the measured position information in the storing means,

control means for discontinuing the information measuring operation of the position measuring means in response to a  
15 position measurement discontinuing manipulation by the user,

checking means operable in response to a position information request command from the terminal communications unit to check whether the position information is stored in the storing means during a specified period of time before  
20 the reception of the command until the reception, and

means for transmitting the position information as converted to a radio signal to the terminal communications

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unit only when the position information is stored during the specified period of time.

30. A portable communications device capable of transmitting position information representing the position  
5 of the device to one or a plurality of terminal communications units by radio communication, the portable communications device comprising:

means for receiving position data from a plurality of position reference stations arranged on a satellite and/or  
10 the ground,

position measuring means for measuring the position information based on the position data received,

means for storing the position information,

information processing means for performing the operation  
15 of storing the measured position information in the storing means,

time setting means for setting a position measurement discontinuing time input by the user,

time detecting means for detecting arrival of the position  
20 measurement discontinuing time set by the time setting means,

control means for discontinuing the information measuring operation of the position measuring means upon the time

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detecting means detecting arrival of the position measurement  
discontinuing time,

checking means operable in response to a position  
information request command from the terminal communications  
5 unit to check whether the position information is stored in  
the storing means during a specified period of time before  
the reception of the command until the reception, and

means for transmitting the position information as  
converted to a radio signal to the terminal communications  
10 unit only when the position information is stored during the  
specified period of time.

31. A portable communications device according to claim  
29 or 30 wherein when the position information is not found  
stored during the specified period of time, the transmitting  
15 means converts to a radio signal notification information to  
the effect that provision of the position information is not  
approved and transmits the radio signal to the terminal  
communications unit.

32. A portable communications device according to claim  
20 29 or 30 wherein the control means causes the position  
measuring means to start the information measuring operation  
in response to a position measurement resuming manipulation

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by the user.

33. A portable communications device according to claim  
30 wherein the time setting means sets a position measurement  
resuming time input by the user, the time detecting means  
5 detects arrival of the position measurement resuming time set  
by the time setting means, and the control means causes the  
position measuring means to start the information measuring  
operation upon the time detecting means detecting arrival of  
the position measurement resuming time.

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